THE WARBLER

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Dear Student, Artist, Thinker,

When we think of the desert, many of us picture one like the Sahara — thousands of miles of rolling sand dunes without a tree, river, or person in sight. Deserts represent something impassable, an area so vast that humans could never cross it (at least not without the help of a camel or two). And they are very, very old — the Sahara's been around since before the Egyptian Pyramids were built.

But practically speaking, a desert is less an immovable mountain than it is a result of environmental trends. The Earth's youngest desert is the Aralkum, overlapping the border of Kazakhstan and Uzbekistan. A large-scale irrigation project in the 1960s drained water away from the Aral Sea, which mostly emptied out over the next few decades. The once lush and diverse ecosystem that supported local towns and cities had disappeared over the next generation, leaving dust and barren land behind in the process known as "desertification."

Though it's true that deserts are very dry, they aren't without their own surprises. What, to the eye, might seem like a desolate wasteland, can transform into a wonderland of wildflowers, given the right conditions. The wildflowers that have adapted to a desert lifestyle release seeds that can lie dormant for years, or even decades. They can't grow until they've experienced enough rain. Often, conditions will coincide after a rare desert storm that allow hundreds and hundreds of flowers to all bloom at once, in what is known as a superbloom. The once barren landscape morphs into a carpet of multicolored blossoms: bright blues, reds, yellows, pinks, and oranges.

They say looks can be deceiving. Looking out at the hot and sandy desert landscape, you might never know what lies just below the surface, waiting for the right circumstances to arrive in order to show its full colors. Same with people: we never know someone's true potential just by looking at the surface. Who can say what people might be capable of, given the right tools and some space? Considering this, maybe it's worth giving your fellow humans the benefit of the doubt — after all, they might be working on a superbloom of their own, just waiting for the right storm to give them the spark they need to blossom.

Kyes Stevens and the APAEP Team

"In the desert of life the wise travel by caravan, while the fool prefers to travel alone." ARABIC PROVERB

WORDS INSIDE

FROM "PEOPLE"...

versatile | able to adapt or be adapted to many different functions or activities

oasis | (*plural: oases*) fertile spot in a desert, where water is found; a pleasant or peaceful area or period in the midst of a difficult, troubled, or hectic place or situation

saline | containing or impregnated with salt; containing sodium chloride and/or a salt or salts of magnesium or another alkali metal

FROM "THE DESERT"...

precipitation | the action or process of precipitating a substance from a solution; rain, snow, sleet, or hail that falls to the ground; the fact or quality of acting suddenly and rashly

prevailing | existing at a particular time; current; having most appeal or influence

desolate | deserted of people and in a state of bleak and dismal emptiness; feeling or showing misery, unhappiness, or loneliness

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SCIENCE

Scientists Still Have Questions About the Mysterious Eye of the Sahara

By Meghan Bartels | *Business Insider* | Jul 12, 2016

For millennia, the Eye of the Sahara was hiding in plain sight.

That's because this huge and mysterious geologic formation is hard to spot from ground level, walking around on Earth.

It turns out that we really discovered this incredible bull's-eye in the sand only when we began sending humans into space.

But even now that we've found it, scientists don't fully understand it.

The Eye of the Sahara, more formally known as the Richat structure, is in the western Sahara Desert in Mauritania, a country on the West African coast. On the ground, it's about 25 miles across.

When the Gemini IV mission, a four-day orbit around Earth, was being prepared in 1965, the astronauts were asked to take photos of Earth's terrain.

They were particularly asked to look out for "any large circular features which might be the roots of impact structures," according to the text accompanying a set of photographs published from the mission.

Impact craters are geologically important because they tell us about the history of Earth. Also, knowing how many times space rocks have crashed into our planet can help scientists make predictions about the future.

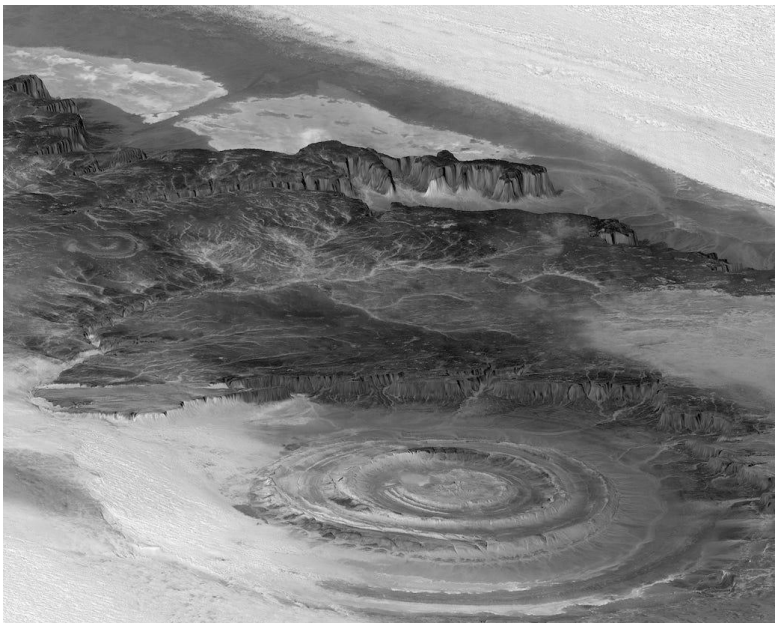
And for a while, scientists did think that the Eye of the Sahara was an impact crater. But they didn't find enough melted rock to make that guess hold water. Current theories suggest a much more complicated story behind this incredible natural formation.

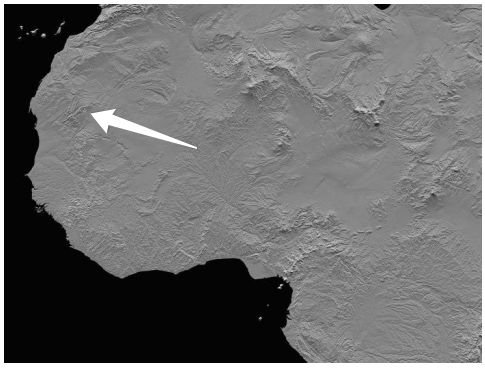
The main ring structure of the Eye is the eroded remains of what was once a dome of layers of Earth's crust.

Scientists still have questions about the Eye of the Sahara, but two Canadian geologists have a working theory about its origins.

They think that the Eye's formation began more than 100 million years ago, as the supercontinent Pangaea was ripped apart by plate tectonics and what are now Africa and South America were being torn away from each other.

Molten rock pushed up toward the surface but didn't make it all the way, creating a dome of rock layers, like a very large pimple. This also created fault lines circling and crossing the Eye. The molten rock also dissolved limestone near the center of the Eye, which collapsed to form a special type of rock called breccia.





SRTM Team NASA/JPL/NIMA

A little after 100 million years ago, the Eye erupted violently. That collapsed the bubble partway, and erosion did the rest of the work to create the Eye of the Sahara that we know today. The rings are made of different types of rock that erode at different speeds. The paler circle near the center of the Eye is volcanic rock created during that explosion.

Modern astronauts are fond of the Eye because so much of the Sahara Desert is an unbroken sea of sand. The Eye is one of the few breaks in the monotony, and now it's become a key landmark for them.

Some people believe that the Eye of the Sahara is actually the remains of the city of Atlantis, which Plato described as concentric rings of water and land. But if you ask us, the geological history this formation reveals is way more interesting. ●

Edited for space.

ANTRHOPOLOGY

People and the Desert

RESOURCE LIBRARY ENCYCLOPEDIC ENTRY | *National Geographic*

About 1 billion people, approximately one-sixth of the earth's population, live in deserts. Many of these people rely on centuries-old customs to make their lives as comfortable as possible. Civilizations throughout the Middle East and Maghreb have adapted their clothing to the hot, dry conditions of the Sahara and Arabian deserts. Clothing is versatile and based on robes made of rectangles of fabric. Long-sleeved, full-length, and often white, these robes shield all but the head and hands from the wind, sand, heat, and cold. White reflects sunlight, and the loose fit allows cooling air to flow across the skin. These robes of loose cloth can be adjusted for length, sleeves, and pockets, depending on the wearer and the climate.

Desert dwellers have also adapted their shelters for the unique climate. The ancient Anasazi peoples of the southwestern United States and northern Mexico constructed huge apartment complexes in the rocky cliffs of the Sonoran Desert. These cliff dwellings, sometimes dozens of meters off the ground, were constructed with thick, earthen walls that provided insulation. Although temperatures outside varied greatly from day to night, temperatures inside did not. Tiny, high windows let in only a little light and helped keep out dust and sand.

The need to find food and water has led many desert civilizations to become nomadic. Nomadic cultures are those that do not have permanent settlements. In the deserts of the Middle East and Asia, nomadic tent communities continue to flourish. Tent walls are made of thick, sturdy cloth that can keep out sand and dust, but also allow cool breezes to blow through. Tents can be rolled up and transported on pack animals (usually horses, donkeys, or camels). Nomads move frequently so their flocks of sheep and goats will have water and grazing land.

Besides animals like camels and goats, a variety of desert vegetation is found in oases and along the shores of rivers and lakes. Figs, olives, and oranges thrive in desert oases and have been harvested for centuries.

Some desert areas rely on resources brought from more fertile areas—food trucked in from distant farmlands or, more frequently, water piped from wetter regions. Large areas of desert soil are irrigated by water pumped from underground sources or brought by canal from distant rivers or lakes. The booming Inland Empire of southeastern California is made up of deserts that rely on water for agriculture, industry, and residential development. A variety of crops can thrive in these irrigated oases.

Source: National Geographic

Oases in desert climates have been popular spots for tourists for centuries. Spas ring the Dead Sea, a saline lake in the Judean Desert of Israel and Jordan. The Dead Sea has had flourishing spas since the time of King David.

Air transportation and the development of air conditioning have made the sunny climate of deserts even more accessible and attractive to people from colder regions. Populations at resorts like Palm Springs, California, and Las Vegas, Nevada, have boomed. Desert parks attract thousands of visitors every year.

In rural areas, hot days turn into cool nights, providing welcome relief from the scorching sun. But in cities, structures like buildings, roads, and parking lots hold on to daytime heat long after the sun sets. The temperature stays high even at night, making the city an "island" of heat in the middle of the desert. This is called the urban heat island effect. It is less pronounced in desert cities than cities built in heavily forested areas. Cities like New York City, New York, and Atlanta, Georgia, can be 5 degrees warmer than the surrounding area. New York was built on wetland habitat, and Atlanta was built in a wooded area. Cities like Phoenix, Arizona, or Kuwait City, Kuwait, have a much smaller urban heat island effect. They may be only slightly warmer than the surrounding desert.

Deserts can hold economically valuable resources that drive civilizations and economies. The most notable desert resource in the world is the massive oil reserves in the Arabian Desert of the Middle East. More than half of the proven oil reserves in the world lie beneath the sands of the Arabian Desert, mostly in Saudi Arabia. The oil industry draws companies, migrant workers, engineers, geologists, and biologists to the Middle East. ●

?

A BLIND MAN GETS MAROONED IN A DESERT. HE HAS 2 RED PILLS AND 2 BLUE PILLS WITH HIM. THE PILLS ARE IDENTICAL IN SIZE AND SHAPE. TO STAY ALIVE, HE MUST TAKE 1 RED PILL AND 1 BLUE PILL. ANY OTHER COMBINATION OF PILLS WOULD BRING HIM CERTAIN DEATH. **HOW CAN THE BLIND MAN ENSURE THAT HE TAKES EXACTLY 1 RED PILL AND 1 BLUE PILL?**

Riddles.com

Edited for space.

MATHEMATICS

Sudoku

#29 PUZZLE NO. 2958866

		3				4	6	5
	6							
	2				1		7	9
	1			2				
			3				8	
5	4					7	3	6
	8		6		9		2	
				5	7			1
							4	

©Sudoku.cool

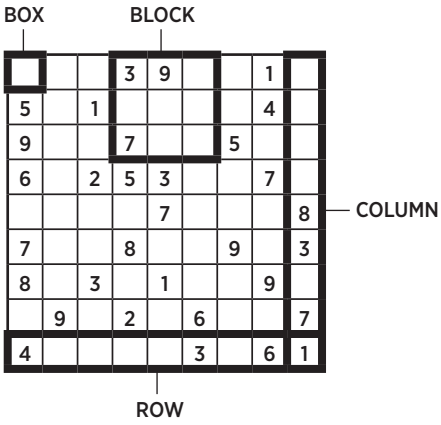
#30 PUZZLE NO. 8270392

5			9					3
		9	2					4
					8			9
4	8							
		5		6		3		7
		6		4	7	9		
	7					1		
			4	1	2			
	5			9				

©Sudoku.cool

SUDOKU HOW-TO GUIDE

1. Each block, row, and column must contain the numbers 1–9.
2. Sudoku is a game of logic and reasoning, so you should not need to guess.
3. Don't repeat numbers within each block, row, or column.
4. Use the process of elimination to figure out the correct placement of numbers in each box.
5. The answers appear on the last page of this newsletter.



What the example will look like solved

2	4	8	3	9	5	7	1	6
5	7	1	6	2	8	3	4	9
9	3	6	7	4	1	5	8	2
6	8	2	5	3	9	1	7	4
3	5	9	1	7	4	6	2	8
7	1	4	8	6	2	9	5	3
8	6	3	4	1	7	2	9	5
1	9	5	2	8	6	4	3	7
4	2	7	9	5	3	8	6	1

"I shivered in those solitudes when I heard the voice of the salt in the desert."

PABLO NERUDA // Chilean poet, diplomat, and politician

Icons from the Noun Project

DID YOU KNOW?

One-third of Earth's land surface is partially or totally desert.

The world's **largest deser**t is Antarctica. An area doesn't have to be hot to qualify — it just needs to lose more moisture than it gains.

There are parts of the Atacama Desert in Chile where **no rain has ever been recorded**.

The $1 billion, **2,900-mile** Trans-Saharan highway will link Africa's most populous city, Lagos, Nigeria, to Algeria and Tunisia.

Desertification (the change from arable land to desert) threatens the livelihoods of more than **1 billion people** in 110 countries, the U.N. says.

Source: *Discover Magazine*

EQComics.com

Idiom

"Bury your head in the sand"

Meaning Refuse to confront or acknowledge a problem.

Origin This comes from the supposed habit of ostriches hiding when faced with attack by predators. The story was first recorded by the Roman writer Pliny the Elder, who suggested that ostriches hide their heads in bushes. Ostriches don't hide, either in bushes or sand, although they do sometimes lie on the ground to make themselves inconspicuous. The 'burying their head in the sand' myth is likely to have originated from people observing them lowering their heads when feeding.

The story also relies on the supposed stupidity of ostriches, and of birds in general. In fact, there's little to support that either as birds have a significantly larger brain to weight ratio than many other species of animal. The notion is that the supposedly dumb ostrich believes that if it can't see its attacker then the attacker can't see it. This was nicely reformed as a joke on Douglas Adams' 'Hitchhiker's Guide to the Galaxy', in which the 'Ravenous Bugblatter Beast of Traal' was described as 'so mind-bogglingly stupid that it assumes that if you can't see it, then it can't see you.'

Source: Phrases.org

THE WORLD RECORD FOR CROSSING THE SAHARA BY BICYCLE WAS SET IN 2011 BY REZA PAKRAVAN, 36, A MARKET SECURITY ANALYST IN LONDON, WHO MADE THE **1,084-MILE JOURNEY** IN 13 DAYS, 5 HOURS, 50 MINUTES, AND 14 SECONDS.

GERMAN PARTICLE PHYSICIST GERHARD KNIES CALCULATED THAT IN SIX HOURS, THE WORLD'S DESERTS RECEIVE **MORE ENERGY FROM THE SUN** THAN HUMANS CONSUME IN A YEAR.

Source: *Discover Magazine*

ART + CULTURE

Taklamakan Desert

BY KO UN | Translated by Suji Kwock Kim and Sunja Kim Kwock

Why I'm going to the Taklamakan Desert:
the emptiness there.

Why I'm going to the Taklamakan Desert
at seventy-five, leaving all words behind: the cry
of the emptiness there.

Why I'm going to the Taklamakan Desert:
I can no longer stand
the world's greed
or mine.

There, in the Taklamakan Desert,
the silence of a thousand-year-old skull.

Korean poet, writer, and activist Ko Un was born in Gunsan-si, South Korea. After witnessing the devastation of the Korean War, Ko entered a monastery and became a Buddhist monk. After being granted a passport in the 1990s, Ko visited North Korea, India, Tibet, and the United States.

Presenting the Griffin Poetry Award, poet Robert Hass described Ko as "one of the heroes of human freedom in this half century, a religious poet who got tangled by accident in the terrible accidents of modern history. But he is somebody who has been equal to the task, a feat rare among human beings."

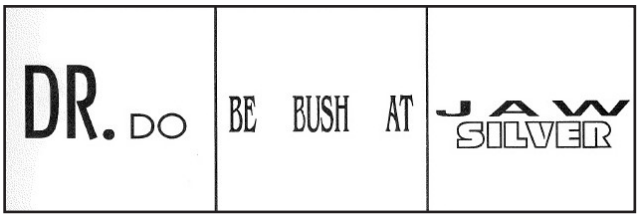
Ko has twice won the South Korean Literature Prize and received the Griffin Trust for Excellence in Poetry's Lifetime Recognition Award. He has taught at Seoul National University, Kyonggi University, Harvard University, and the University of California at Berkeley. Ko lives in South Korea.

WRITING PROMPT
We often think of the desert as a scorching, unwelcoming place. But even though it may lack many plants, animals, or water, there are still positives: peacefulness, beauty, immensity, and others. In a poem, explore another simple, empty place--geographical, mental, or emotional, and list what you find there in meditation.

Word Search

S	D	E	E	M	P	T	I	N	E	S	S	N	R
E	N	G	S	C	E	C	N	E	L	I	S	U	E
V	I	R	I	T	E	E	V	S	K	U	L	L	M
E	H	E	E	G	Y	E	A	R	N	L	E	E	B
N	E	E	E	D	S	M	S	E	I	E	S	S	S
T	B	D	S	M	V	A	I	E	S	A	D	S	V
Y	E	E	E	E	T	N	E	N	N	V	E	T	I
E	R	L	R	E	E	H	D	E	E	I	S	A	E
V	S	B	W	E	S	E	O	E	R	N	E	N	U
I	B	S	O	I	D	D	R	U	H	G	R	D	C
F	T	Y	R	Y	R	E	T	E	S	N	T	R	W
V	H	O	L	V	O	T	D	D	L	A	Y	N	E
I	U	E	D	E	W	N	G	R	I	O	N	V	N
N	O	E	S	T	V	R	R	I	I	E	I	D	R

YEAR
MINE
EMPTINESS
CRY
FIVE
DESERT
WORLD
GREED
THOUSAND
SKULL
SEVENTY
SILENCE
BEHIND
STAND
WORDS
LEAVING



WORD PLAY

A Rebus puzzle is a picture representation of a common word or phrase. How the letters/images appear within each box will give you clues to the answer! For example, if you saw the letters "LOOK ULEAP," you could guess that the phrase is "Look before you leap." *Answers are on the last page!*

PERSONAL HISTORY

Meet the Youngest Female Racing the Planet's 4 Deserts

BY TESSA CHARTERS | *Contiki* | Published 2018 | *Other information taken from "6 Amazing Desert Races" by Staff at Live Science.*

1 girl, 4 deserts, 1000kms, 28 days. Seems impossible right? Meet the girl who is making the impossible, possible. Jacqui Bell, a 23-year-old Australian, is on a mission to be the youngest female to cross the planet's four deserts in one calendar year. Only 50 people before her have completed the *4 Deserts Grand Slam,* a series of the world's toughest endurance races. Combining running and walking, pushing herself to the limit both mentally and physically, she will be tackling the Sahara Race in Namibia, the Atacama Crossing in Chile, the Gobi March in China, and The Last Desert in Antarctica. Oh, and did I mention it is all self-supported? She has to carry everything she needs with her, including equipment and food for each 7-day race, given only water and a tent from the event.

Jacqui has had to overcome her own personal battles along the journey, which in turn have become her biggest motivators. She is driven by the desire to raise awareness around mental health and specifically depression — an illness she has struggled with in the past. Throughout this journey Jacqui aims to raise $20,000 in support of the White Cloud Foundation, a depression awareness nonprofit.

As expected, it has taken Jacqui months of training and preparation for each race. But through the support of her family and friends, along with an A-team of specialists and coaches, she is ticking off those milestones. Jacqui's efforts are not going unnoticed either, gaining her sponsorship from several well-known brands.

With her next race fast approaching, Jacqui is focusing on taking the unique experiences from each race to provide her with valuable skills she can take into the next. When asked how she was feeling about the challenge ahead, she said, "I can't wait for the next 500kms worth of life lessons."

About the 4 Deserts Grand Slam Races

The Atacama Crossing race in Chile is first in the "4 Deserts" series. The Atacama Desert, which is 15 million years old, is one of the driest places on Earth and is the most lunar-like landscape on Earth. The race's elevation varies, but the entire race is held at least 1.4 miles above sea level and peaks at 10,000 feet above sea level. The race spans 150 miles, which is far enough to cross the width of Chile. Temperatures during the day are around 104 degrees. At night, temperatures may drop to 41 degrees.

Next is the **Gobi March** in China. Kashgar is the host city for the 155-mile, 7-day foot race. Along the course, runners will pass Shipton's Arch, a natural arch that is taller than the Empire State Building. In the Gobi Desert, runners trek across dry, rocky riverbeds, dusty tracks, narrow ridge paths, and green pastures. Average temperatures are between 95 to 113 degrees. 20% of competitors run the entire course; others split time running and walking. This year's fastest completion time is expected to be around 24 hours and the slowest around 70 hours.

The iconic **Sahara Desert**, the largest non-polar desert in the world, is home to the third race in the "4 Deserts" series. This race is also 155-miles long, but it's run across the hottest desert in the world. During the event, competitors cross through The Valley of the Whales, where an ancient shallow sea once covered the land, passing fossils that are believed to be from whales with legs that died out 40 million years ago, and finish at the Pyramids of Giza. The terrain is a mixture of hard-packed sand, soft sand, and sand dunes. Temperatures on the course reach as high as 122 degrees. The race generally accommodates up to 200 competitors from more than 40 countries.

The Last Desert race on the Antarctic continent is the final of the series. The starting point isn't in Antarctica, but in Ushuaia, Argentina. Competitors who have qualified will board the expedition ship, the Antarctic Dream, to sail across the Drake Passage to several locations in Antarctica. The terrain will be largely snow and it varies in depth from just a few inches to several feet. Temperatures on the course can reach as low as negative 4 degrees.

Of those who elect to compete in the "Grand Slam", 80% of competitors are men and 20% are women. In ten years, there have been over 10,000 registrations for the 4 Desert races. Competitors must be between the ages of 21 and 70, and can sign up as a team or individual, though they are not just racing for themselves: they are racing for charity. Millions of dollars have been raised for hundreds of charities around the world through the 4 Desert Series races. ●

HOW FAR CAN YOU RUN INTO A DESERT?

WHAT DO YOU CALL A PENGUIN IN THE DESERT?

A CAMEL DRIVER HAS TO CROSS THE DESERT AND GET TO THE NILE RIVER TO TRANSPORT HIS MERCHANDISE. IT TAKES SIX WEEKS TO CROSS THE DESERT AND GET TO THE NILE RIVER. HE CAN ONLY CARRY FOUR WEEKS OF FOOD FOR HIMSELF AND HIS CAMEL AT ANY TIME BECAUSE THE CAMEL ALSO HAS TO CARRY HIS MERCHANDISE. IF HE CAN NOT GET HELP FROM ANYONE ELSE OR GET ANYMORE CAMELS, AND THERE IS AN UNLIMITED SUPPLY OF FOOD WHERE HE IS AT, H**OW CAN HE CROSS THE DESERT AND GET TO THE NILE RIVER?**

Riddles.com

Edited for clarity.

GEOGRAPHY

The Desert Ecosystem

RESOURCE LIBRARY ENCYCLOPEDIC ENTRY | National Geographic

People often use the adjectives "hot," "dry," and "empty" to describe deserts, but these words do not tell the whole story. Although some deserts are very hot, with daytime temperatures as high as 130°F, other deserts have cold winters or are cold year-round. And most deserts, far from being empty and lifeless, are home to a variety of plants, animals, and other organisms. Even people have adapted to life in the desert for thousands of years.

One thing all deserts have in common is that they are arid, or dry. Most experts agree that a desert is an area of land that receives no more than 10 inches of precipitation a year. The amount of evaporation in a desert often greatly exceeds the annual rainfall. In all deserts, there is little water available for plants and other organisms.

Deserts are found on every continent and cover about one-fifth of Earth's land area. Although the word "desert" may bring to mind a sea of shifting sand, dunes cover only about 10 percent of the world's deserts. Others are mountainous, dry expanses of rock, sand, or salt flats.

The world's deserts can be divided into five types—subtropical, coastal, rain shadow, interior, and polar. Deserts are divided into these types according to the causes of their dryness.

Subtropical deserts are caused by the circulation patterns of air masses. found along the Tropic of Cancer and the Tropic of Capricorn, between 15 and 30 degrees north and south of the Equator.

Hot, moist air rises into the atmosphere near the Equator. As the air rises, it cools and drops its moisture as heavy tropical rains. The resulting cooler, drier air mass moves away from the Equator. As it approaches the tropics, the air descends and warms up again. The descending air hinders the formation of clouds, so very little rain falls on the land below.

The world's largest hot desert, the Sahara, is a subtropical desert in northern Africa. The Sahara Desert is almost the size of the entire continental United States.

Cold ocean currents contribute to the formation of **coastal deserts**. Air blowing toward shore, chilled by contact with cold water, produces a layer of fog. This heavy fog drifts onto land. Although humidity is high, the atmospheric changes that normally cause rainfall are not present. A coastal desert may be almost totally rainless, yet damp with fog.

The Atacama Desert, on the Pacific shores of Chile, is a coastal desert often covered by fog. The region, which can go decades without rainfall, is the driest place on Earth. Some weather stations in the Atacama have never recorded a drop of rain.

Rain shadow deserts exist near the leeward slopes of some mountain ranges, which face away from prevailing winds. When moisture-laden air hits a mountain range, it is forced to rise. The air then cools and forms clouds that drop moisture on the wind-facing slopes. When the air moves over the mountaintop and begins to descend, there is little moisture left. The descending air warms up, making it difficult for clouds to form.

Death Valley, in California and Nevada, is a rain shadow desert of the Sierra Nevada mountains, and the lowest and driest place in North America.

Interior deserts, which are found in the heart of continents, exist because no moisture-laden winds reach them. By the time air masses from coastal areas reach the interior, they have lost all their moisture. Interior deserts are sometimes called inland deserts.

The Gobi Desert, in China and Mongolia, lies hundreds of miles from the ocean. Winds that reach the Gobi have long since lost their moisture.

Even parts of the Arctic and the Antarctic are classified as deserts. These **polar deserts** contain great quantities of water, but most of it is locked in glaciers and ice sheets year-round. So, despite the presence of millions of liters of water, there is actually little available for plants and animals.

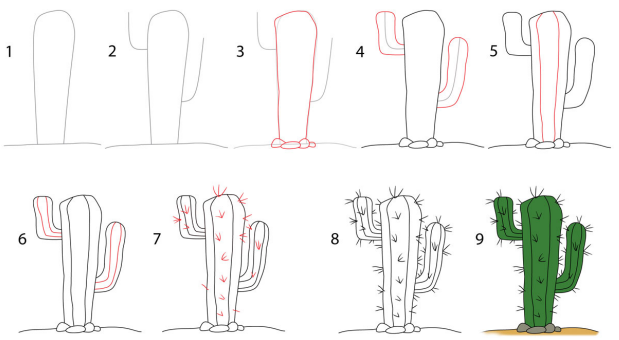
The largest desert in the world is also the coldest. Almost the entire continent of Antarctica is a polar desert, experiencing little precipitation. Few organisms can withstand the freezing, dry climate of Antarctica.

Plants and animals adapt to desert habitats in many ways. Desert plants grow far apart, allowing them to

Death Valley, California, receives fewer than 5 cm (2 inches) of rainfall every year. However, Death Valley's infrequent rain and extreme temperatures can impact the landscape. This rock's path was created when rainfall produced a shallow lake, which formed a thin layer of ice. The rock was trapped in the ice as it scoured the desert landscape. The ice melted, leaving its tracks in the dried mud.

Source: National Geographic

HOW TO DRAW ...



obtain as much water around them as possible. This spacing gives some desert regions a desolate appearance.

In some deserts, plants have unique leaves to capture sunlight for photosynthesis, the process plants use to make food. Small pores in the leaves, called stomata, take in carbon dioxide. When they open, they also release water vapor. In the desert, all these stomata would quickly dry out a plant. So desert plants typically have tiny, waxy leaves. Cactuses have no leaves at all. They produce food in their green stems.

Cactuses also have shallow, wide-spreading root systems. The plants soak up water quickly and store it in their cells. Saguaro cactuses, which live in the Sonoran Desert of Arizona and northern Mexico, expand like accordions to store water in the cells of their trunks and branches. A large saguaro is a living storage tower that can hold hundreds of gallons of water.

Other desert plants have very deep roots. The roots of a mesquite tree, for example, can reach water more than 100 feet underground. Desert plants often have thorns to protect them from grazing animals.

Animals that have adapted to a desert environment are called xerocoles. Xerocoles include species of insects, reptiles, birds, and mammals. Some xerocoles avoid the sun by resting in scarce shade. Many escape the heat in cool burrows they dig in the ground. Fennec foxes, native to the Sahara Desert, work together in communities to dig large burrows, some as large as 1,000 square feet. Dew can collect in these burrows, providing the foxes with fresh water. However, fennec foxes have adapted so they do not have to drink water at all: Their kidneys retain enough water from the food they eat.

Most xerocoles are nocturnal. They sleep through the hot days and do their hunting and foraging at night. Deserts that seem desolate during the day are very active in the cool nighttime air. Foxes, coyotes, rats, and rabbits are all nocturnal desert mammals. Snakes and lizards are familiar desert reptiles. Insects such as moths and flies are abundant in the desert. Most desert birds are restricted to areas near water, such as river banks. However, birds like the roadrunner have adapted to life in the desert by obtaining water from its food.

Some xerocoles have bodies that help them handle the heat. A desert tortoise's thick shell **insulates** the animal and reduces water loss. Sand lizards are nicknamed "dancing lizards" because of the way they quickly lift one leg at a time off the hot desert sand. A jackrabbit's long ears contain blood vessels that release heat. Desert vultures urinate on their own legs, cooling them by evaporation.

The thorny devil, a lizard that lives in the Australian Outback, has a system of tiny grooves and channels on its body that lead to its mouth. The lizard catches rain and dew in these grooves and sucks them into its mouth by gulping. Camels are also very efficient water users. The animals do not store water in their humps, as people once believed. The humps store fat, and hydrogen molecules in the fat combine with inhaled oxygen to form water. During a shortage, camels draw upon this resource for nutrition and moisture. Dromedary camels, native to the Arabian and Sahara deserts, can lose up to 30 percent of their body weight without harm. ●

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RANDOM-NEST

10 Tips for Public Speaking

INFORMATION TAKEN FROM **MARJORIE NORTH** | HARVARD EXTENSION SCHOOL

Just thinking about public speaking—routinely described as one of the most common fears—can make your palms sweat like you are stuck in the desert. But there are many ways to tackle this anxiety.

1. Nervousness Is Normal. Practice and Prepare! The adrenaline rush that makes you sweat also makes you more alert and ready to give your best performance. The best way to overcome anxiety is to prepare, prepare, and prepare some more.

2. Know Your Audience. Your Speech Is About Them, Not You. Before you begin to craft your message, consider who the message is intended for. This will help you determine your choice of words, level of information, organization pattern, and motivational statement.

3. Organize Your Material in the Most Effective Manner to Attain Your Purpose. Create the framework for your speech. Write down the topic, general purpose, specific purpose, central idea, and main points. Make sure to grab the audience's attention in the first 30 seconds.

4. Watch for Feedback and Adapt to It. Keep the focus on the audience. Gauge their reactions, adjust your message, and stay flexible. Delivering a canned speech will guarantee that you lose the attention of or confuse even the most devoted listeners.

5. Let Your Personality Come Through. Be yourself, don't become a talking head. You will establish better credibility if your personality shines through, and your audience will trust what you have to say if they can see you as a real person.

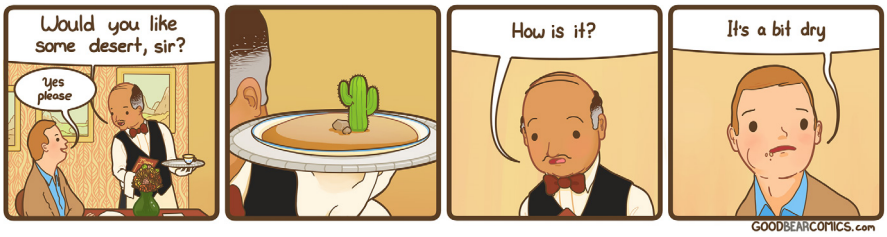
6. Use Humor, Tell Stories, and Use Effective Language. Inject a funny anecdote in your presentation, and you will certainly grab your audience's attention. Audiences generally like a personal touch in a speech.

7. Don't Read Unless You Have to. Work from an Outline. Reading from a script or slide fractures the interpersonal connection. By maintaining eye contact with the audience, you keep the focus on yourself and your message.

8. Use Your Voice and Hands Effectively. Omit Nervous Gestures. Nonverbal communication carries most of the message.

9. Grab Attention at the Beginning, and Close with a Dynamic End. Do you enjoy hearing a speech start with "Today I'm going to talk to you about X"? Instead, use a startling statistic, an interesting anecdote, or concise quotation. Conclude your speech with a strong statement your audience will remember.

10. Use Audiovisual Aids Wisely. Too many can break the direct connection to the audience, so use them sparingly.



Words of Encouragement

Martin Luther King Jr. once said, "We must accept finite disappointment, but never lose infinite hope." While there is uncertainty and concern in the world due to the current pandemic, it would be easy to feel discouragement and despair over its personal impacts; however, I encourage you to choose to feel hope!

What does hope look like? What does it mean to live hopefully? Here is a summary of traits of the hopeful, according to IQ Matrix founder Adam Sicinski:

A hopeful person ...
➽ Is grateful for what they have, but is always looking for ways to make improvements
➽ Imagines a better world, and makes concrete goals to change the world around them
➽ Is curious, seeking for knowledge and truth
➽ Makes the best of any situation, recognizing that hope does not guarantee that there will be no hardships
➽ Accepts that every experience has value and can benefit them, and makes the most out of every circumstance
➽ Remains aware of negative thoughts, and actively replaces them with thoughts in perspective, even in dire circumstances
➽ Lives in the moment as well as the future; every day is important for growth and experience
➽ Consistently makes effort in the direction of goals
➽ Regularly builds on successes and achievements, learning from past experiences to make the most of current ones
➽ Focuses on being generous and giving
➽ Seeks opportunities to give and receive help and support, understanding that with other people's help, achieving goals is possible
➽ Feels gratitude for what they have as they seek for that which is better

I encourage you to reflect on how you can feel more hopeful, perhaps choosing one or more of these attributes as a goal each week. Choosing to face the current situation with a positive attitude will make all the difference for you in how you use your time and will impact how you are feeling.

You have been in my thoughts and prayers for good health and for a quick remedy to the situation so you can move forward. And of course, I have been hoping that those still taking math are practicing math facts regularly! :)

Maria

Answers

SUDOKU #29

1	9	3	8	7	2	4	6	5
7	6	5	9	3	4	2	1	8
8	2	4	5	6	1	3	7	9
3	1	8	7	2	6	9	5	4
6	7	9	3	4	5	1	8	2
5	4	2	1	9	8	7	3	6
4	8	7	6	1	9	5	2	3
2	3	6	4	5	7	8	9	1
9	5	1	2	8	3	6	4	7

SUDOKU #30

5	6	2	9	7	4	8	1	3
8	1	9	2	3	6	5	7	4
7	4	3	1	5	8	2	6	9
4	8	7	3	2	9	6	5	1
9	2	5	8	6	1	3	4	7
1	3	6	5	4	7	9	2	8
3	7	4	6	8	5	1	9	2
6	9	8	4	1	2	7	3	5
2	5	1	7	9	3	4	8	6

Brainteasers

Page 3 The man will break each of the 4 pills in half and eat 1 half from each of the pills.
Page 6 Rebus Puzzle:
1. Dr. Dolittle
2. Beat around the bush
3. Long John Silver
Page 7 Halfway — in the other half, you're running out. // Lost! // He takes four weeks of food and leaves two weeks of food supplies at the one week mark and goes back with the one week of food supply left. Then he goes back with four weeks of food and picks up one week of food supplies from the one week mark giving him four again in total, then he leaves two weeks of supply at the two week mark and goes back to the one week mark and picks up the one week food supply to go back. Then he leaves with the four weeks of food supply and goes to the two week mark and picks up the two week food supplies that were there giving him four weeks of food again, then he goes to the Nile River with the four weeks supply of food.

Send ideas and comments to:

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UNTIL NEXT TIME !